

## BEST AVAILABLE COPY

## What Is Claimed Is:

- 1 1. A method of post-deposition treating a carbon-containing layer on a substrate,  
2 comprising exposing the carbon-containing layer to a treatment plasma.
- 1 2. The method of claim 1, wherein the carbon-containing layer comprises silicon carbide.
- 1 3. The method of claim 1, wherein the treatment plasma comprises an inert plasma.
- 1 4. The method of claim 3, wherein the treatment plasma comprises a He plasma.
- 1 5. The method of claim 1, wherein the treatment plasma comprises an oxygen-containing  
2 plasma.
- 1 6. The method of claim 5, wherein the treatment plasma comprises a N<sub>2</sub>O plasma.
- 1 7. The method of claim 3, wherein exposing the carbon-containing layer to the treatment  
2 plasma comprises exposing the layer in the substantial absence of oxygen, nitrogen, and  
3 hydrogen containing gases.
- 1 8. The method of claim 1, further comprising generating the treatment plasma by flowing  
2 a gas into a processing chamber at a rate of about 100 to about 4000 sccm, establishing a  
3 chamber pressure between about 1 to about 12 Torr, applying RF power to the chamber having  
4 a power density of about 0.7 to about 11 W/in<sup>2</sup>.
- 1 9. The method of claim 1, wherein exposing the carbon-containing layer to the treatment  
2 plasma occurs *in situ* with a deposition of the carbon-containing layer.
- 1 10. A system for treating a carbon-containing layer on a substrate, comprising:  
2 a) a substrate processing chamber in which the carbon-containing layer is exposed  
3 to a treatment plasma;

- 1 b) a gas distributor connected to the chamber;  
2 c) a source of gas connected to the gas distributor; and  
3 e) a power source adapted to generate the treatment plasma to expose the carbon-  
4 containing layer.

## BEST AVAILABLE COPY

1 11. The system of claim 10, wherein carbon-containing layer comprises silicon carbide.

1 12. The system of claim 10, wherein the treatment plasma comprises an inert gas.

1 13. The system of claim 12, wherein the treatment plasma comprises a He plasma.

1 14. The system of claim 10, wherein the treatment plasma comprises an oxygen-containing  
2 gas.

1 15. The system of claim 14, wherein the treatment plasma comprises a N<sub>2</sub>O plasma.

1 16. The system of claim 10, wherein the chamber is adapted to deposit the carbon-  
2 containing layer on the substrate *in situ* with and prior to exposure of the carbon-containing  
3 layer with the treatment plasma.

1 17. The system of claim 11, wherein the treatment plasma is produced by a process  
2 comprising flowing the gas into the chamber at a rate of about 100 to about 4000 sccm,  
3 establishing a chamber pressure between about 1 to about 12 Torr, and applying RF power to  
4 the chamber having a power density of about 0.7 to about 11 W/in<sup>2</sup>.

1 18. A substrate, comprising a carbon-containing layer surface exposed to a treatment  
2 plasma.

1 19. The substrate of claim 18, wherein carbon-containing layer comprises silicon carbide.

1 20. The substrate of claim 18, wherein exposure of the carbon-containing layer to the  
2 treatment plasma occurs *in situ* with a deposition of the carbon-containing layer.

- 1 21. The substrate of claim 18, wherein the treatment plasma comprises a He plasma.
- 1 22. The substrate of claim 18, wherein the treatment plasma comprises a N<sub>2</sub>O plasma.
- 1 23. The system of claim 18, wherein the treatment plasma is produced by a process  
2 comprising flowing a gas into a processing chamber at a rate of about 100 to about 4000 sccm,  
3 establishing a chamber pressure between about 1 to about 12 Torr, and applying RF power to  
4 the chamber having a power density of about 0.7 to about 11 W/in<sup>2</sup>.

ADD  
A-1

ADD  
C37